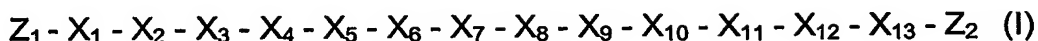


WHAT IS CLAIMED IS:

1. A substantially pure GD2 ligand of Formula I:



wherein

X_1 is absent or Y or an analogue thereof;

X_2 is absent or C or an analogue thereof;

X_3 is G or Y or an analogue thereof;

X_4 is G or C or Y or an analogue thereof;

X_5 is I or C or an analogue thereof;

X_6 is T or A or an analogue thereof;

X_7 is N or an analogue thereof;

X_8 is Y or an analogue thereof;

X_9 is N or G or an analogue thereof;

X_{10} is S or C or V or T or an analogue thereof;

X_{11} is A or C or Y or H or S or an analogue thereof;

X_{12} is absent or L or C or Y or an analogue thereof;

X_{13} is absent or M or Y or an analogue thereof;

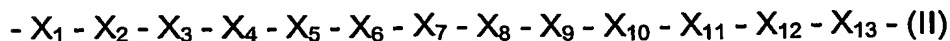
Z_1 is an N-terminal group of the formula H_2N- , $RHN-$ or, $RRN-$;

Z_2 is a C-terminal group of the formula $-C(O)OH$, $-C(O)R$, $-C(O)OR$, $-C(O)NHR$, $-C(O)NRR$;

R at each occurrence is independently selected from (C_1-C_6) alkyl, (C_1-C_6) alkenyl, (C_1-C_6) alkynyl, substituted (C_1-C_6) alkyl, substituted (C_1-C_6) alkenyl, or substituted (C_1-C_6) alkynyl;

and wherein "-" is a covalent linkage.

2. A substantially pure synthetic GD2 ligand or recombinant GD2 ligand having a domain of Formula II:



wherein

X₁ is absent or Y or an analogue thereof;

X₂ is absent or C or an analogue thereof;

5 X₃ is G or Y or an analogue thereof;

X₄ is G or C or Y or an analogue thereof;

X₅ is I or C or an analogue thereof;

X₆ is T or A or an analogue thereof;

X₇ is N or an analogue thereof;

10 X₈ is Y or an analogue thereof;

X₉ is N or G or an analogue thereof;

X₁₀ is S or C or V or T or an analogue thereof;

X₁₁ is A or C or Y or H or S or an analogue thereof;

X₁₂ is absent or L or C or Y or an analogue thereof;

15 X₁₃ is absent or M or Y or an analogue thereof;

and wherein "-" is a covalent linkage.

3. The GD2 ligand of claim 1 or 2, wherein the ligand further comprises a cyclic linkage between any two of X₁ through X₁₃.

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4. The GD2 ligand of claim 1, wherein the ligand is selected from the group consisting of: GGITNYNSALM; YCGGITNYNSACY; YCITNYNSCY; YCGGITNYNCY; YCTNYGVHCY; YCTNYGVCY; GGIANYNTS; YCGGIANYNCY; YCGGIANYNTSCY; and, YCIANYNTCY.

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5. The GD2 ligand of claim 2, wherein the domain is selected from the group consisting of: GGITNYNSALM; YCGGITNYNSACY; YCITNYNSCY; YCGGITNYNCY; YCTNYGVHCY; YCTNYGVCY; GGIANYNTS; YCGGIANYNCY; YCGGIANYNTSCY; and, YCIANYNTCY.

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6. A method of treating a subject having a disease wherein disease cells express GD2, the method comprising administering to the subject an effective amount of the GD2 ligand of any one of claims 1 through 5.
- 5 7. A method of diagnosis of a disease wherein disease cells express GD2, comprising determining whether a cell from a subject binds to the GD2 ligand of any one of claims 1 through 5.
8. The method of claim 6 or 7 wherein the method is carried out *in vitro*.
- 10 9. The method of claim 6 or 7 wherein the method is carried out *in vivo*.
10. The method of claim 6, further comprising administering to the patient an effective amount of granulocyte-macrophage colony-stimulating factor.
- 15 11. A pharmaceutical composition comprising the GD2 ligand of any one of claims 1 through 5, together with an effective amount of granulocyte-macrophage colony-stimulating factor.
- 20 12. A commercial package comprising the GD2 ligand of any one of claims 1 through 5, together with instructions for using the GD2 ligand to modulate GD2 activity or detect cells expressing GD2.
- 25 13. The GD2 ligand of claim 2, wherein the GD2 ligand is a recombinant T-cell receptor.
14. The GD2 ligand of claim 13, wherein the recombinant T-cell receptor is expressed in a cytotoxic T cell line.
- 30 15. An isolated GD2 ligand substantially as hereinbefore described and with reference to the examples.

- 5 16. A method of ablating a cell line, comprising transforming the cell line to provide transformed cells that express GD2, and treating the transformed cells with an effective amount of the GD2 ligand of claim 1 or 2.
17. The use of a GD2 ligand of any one of claims 1 through 5 to formulate a medicament to treat a disease wherein diseases cells express GD2.
- 10 18. The use of a GD2 ligand according to claim 17, wherein the disease is a cancer.
19. The use of a GD2 ligand according to claim 18, wherein the cancer is a neuroblastoma.
- 15 20. A method of screening to identify or validate a putative GD2 ligand, comprising:
a) administering a putative GD2 ligand to a system having a GD2 moiety and a p56^{Lck} moiety available for association; and,
20 f) measuring an association or functional relationship between the GD2 and the p56^{Lck} moieties in the system.
21. The method of claim 20, wherein the putative GD2 ligand comprises a polypeptide or a non-peptidic analog such as a peptidomimetic that displays the same pharmacophore or has similar side chain functional groups.
- 25 22. The method of claim 20, wherein the putative GD2 ligand is derived from tenascin-R.
- 30 23. The method of claim 20, wherein the system is a cell expressing GD2 and p56^{Lck}.

24. The method of claim 20, wherein the GD2 moiety is native GD2.

25. The method of claim 20, wherein the p56^{Lck} moiety is native p56^{Lck}.

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26. The method of claim 20, wherein the association between the GD2 and the p56^{Lck} moieties is measured by determining a kinase activity of the p56^{Lck} moiety.

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